



Bulletin



March 2019

From the Pres



Dick K5TF

Sorry that we had to cancel the meeting last month because of the weather, but I feel that it was the right decision given the number of weather-related accidents, including a fatality, reported in the news the following day. Mike Greenway K4PI will present his new 6 Meter program Thursday evening, March 21st, so let's have a great turnout for that. Included in the raffle this month will be a 4 element Telrex 6 Meter beam. How's that for drawing a large crowd for Mike's program? The 6 Meter season is just around the corner, so please make every effort to be at Thursday's meeting, 7:30 PM in the Rich Auditorium, Piedmont Hospital. Getting together beforehand in the hospital cafeteria for excellent food and fellowship.

73 es gud DX,
Dick K5TF ❖

This Month's Meeting

Date/Time: **Thursday March 21st** @ 7:30 PM
Location: Rich Auditorium, Piedmont Hospital
Details at www.sedxc.org



Program Title: **Dxing on 6 Meters**
Speaker: **Mike K4PI**

Working DX on 6 Meters. This program was generated for the W4DXCC Convention several years ago and has only been shown once there at the convention. It is a Power Point presentation. I have talked about 6m DX before at the club, but I believe this is a new presentation. 6M DXing is not for everyone, but if you have some interest I think I can answer some questions.

73,

Mike K4PI ❖

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BOUVETØYA.org
BOUVET ISLAND
3YØI EXPEDITION 2018

<https://bouvetoya.org/>

Treasurer's Journal

Checkbook Balance as of February 1, 2019: \$11,873.
Check issued: CQ WW 160M Contest Plaque = \$55

73,

Jeff K1ZN ❖

Announcements

The Georgia QSO Party



Dates: April 13, 1800z – 0359z; April 14, 1400z – 2359z

Info: <http://www.georgiaqsoparty.org>

The space left blank waiting for Your Story!
--Editor

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SEDXC Chat Room: details on webpage

SEDXC Reflector: details on webpage

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Around the Shack de N4GG/4



Watertight Enclosures

Every now and then I run into an attempt to make a “watertight” enclosure. There are almost no watertight enclosures.

Even a \$13,000 Rolex Submariner wristwatch has its limits. These come with a gasketed screw-on crown and they are watertight to a depth of 1,000 feet – this is Rolex’s “dive watch.” The screw-on back also has a gasket. The warrantee is five years. Rolex warns that by ten years the gaskets could be shot and the watch should be serviced (\$500 or more! Left unserved, by 15 years your 1,000 ft. certified dive watch might fill with water while swimming.

The Rolex Submariner is about as good a watertight enclosure as we know how to make and is priced accordingly. What about ham gear?

Two short stories:

I was gifted a commercially-built trap dipole some years ago – the trap on each side of the center insulator allowed for operation on 30 and 40 meters. When I received it, the antenna had been in the air for a year or two and then stored indoors for a year or two. I put it up and it didn’t work. I will make this brief: I wound up pouring water out of the “sealed” traps. The traps were made of PVC pipe with PVC end caps cemented on. A stainless steel screw exited through the middle of each end cap and the screws appeared well sealed and not the least bit corroded. Why were the traps half filled with water? During year(s) of storage, why hadn’t the water left the way it got in?

I worked in a large aerospace company for years and had access to labs filled with state-of-the-art test equipment – a fun job. Every circuit board we shipped received “conformal coating” – sprayed on to prevent humidity from affecting the circuits.

Around the Shack (cont.)

Conformal coating was tough stuff and nearly impossible to remove once applied. It sure looked like the circuits were sealed under all that goop. But they weren't, at least not completely. Based on a suspicion, we ran an experiment designed to check just how good the coating was. We took a humidity probe, put it in a humidity chamber set to zero humidity and conformal coated it. The meter on the far end of the probe read zero humidity – all good so far. We then reset the chamber to 50% humidity and watched and waited. After a day the meter read 50%. The humidity had made its way through the conformal coating in 24 hours and this was a very benign test – no temperature cycling, no wind blown rain, no ice, etc. The conformal coating we were using was Rolex-like quality, MIL-STD. It was the best money could buy.

So, what hope do we have as hams to have a fully sealed outdoor enclosure, whether it be home-brew or commercial? “Outdoor” includes temperature cycling, wind blown rain, ice, etc. The answer is: there is little to no hope of sealing an outdoor enclosure.

There are two main culprits for water showing up inside enclosures – leaks and the condensation of humidity.

Leaks come about a variety of ways. Wires have to get in and out of our outdoor enclosures and the holes for those often leak despite our best efforts. Also, water will wick up stranded wire due to capillary action. Connections made by bolting SO-239s to the walls of enclosures might look water tight – but it turns out SO-239s are not watertight – water will pass through them. Through-bolting through the wall of what are sold as “NEMA” or PVC enclosures will compress the plastic – which relaxes over time and creates a path for leaks.

Even enclosures that don't leak tend to breathe. Humid air winds up inside the enclosure where it condenses to a liquid as the temperature drops. Temperature cycling can build up an amazing amount of water inside what we think is a sealed box. I have opened some of my “sealed” NEMA boxes at N4GG and discovered the inside to be perfectly dry and all the parts inside hopelessly corroded. Water can move back and forth from the vapor phase to the liquid phase with ease – and it does.

(One caveat at this point: There *are* successfully sealed units and we see them sometime in ham radio. Vacuum tubes are in this category – the glass-to-metal seals where the connections exit a vacuum tube will last indefinitely. Potting is another method to “seal” things.)

So, what to do? Give up on “sealed” and leave enclosures open. Notice the breaker box and the cable box on the side of your house? They keep the rain out and that's it. Some tips:

- If you are using a NEMA box leave drain holes in the bottom. (Remember the older trap tribanders with holes in every trap? The holes go down not up!)
- Electrical boxes (typically steel and at every home goods store), cable TV boxes and telephone service boxes are all good for ham purposes. These are commercial-grade products and the professionals make no attempt to “seal” outdoors.
- Outdoor boxes should always have all leads exiting through the bottom along with all connectors at the bottom.
- A temporary (or maybe permanent?) solution is an upside down bucket or plastic box placed over whatever needs protection. At N4GG there is now a Rubbermaid storage box bottom turned upside down over my antenna relays. It was spray painted black to help with UV protection and to blend in. It's been there for years. It's completely open at the bottom and working fine.

A sad postscript to mention: At N4GG the other day a relay in an outdoor NEMA box - with a drain hole – quit working. Opening the box revealed an ant colony. It's always something!

73,

Hal N4GG/4❖

DXpedition Funding Requests

None at this time--Editor